2023 GLOBAL OUTLOOK

A YEAR OF TRANSITIONS

FEBRUARY 2023

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Executive summary

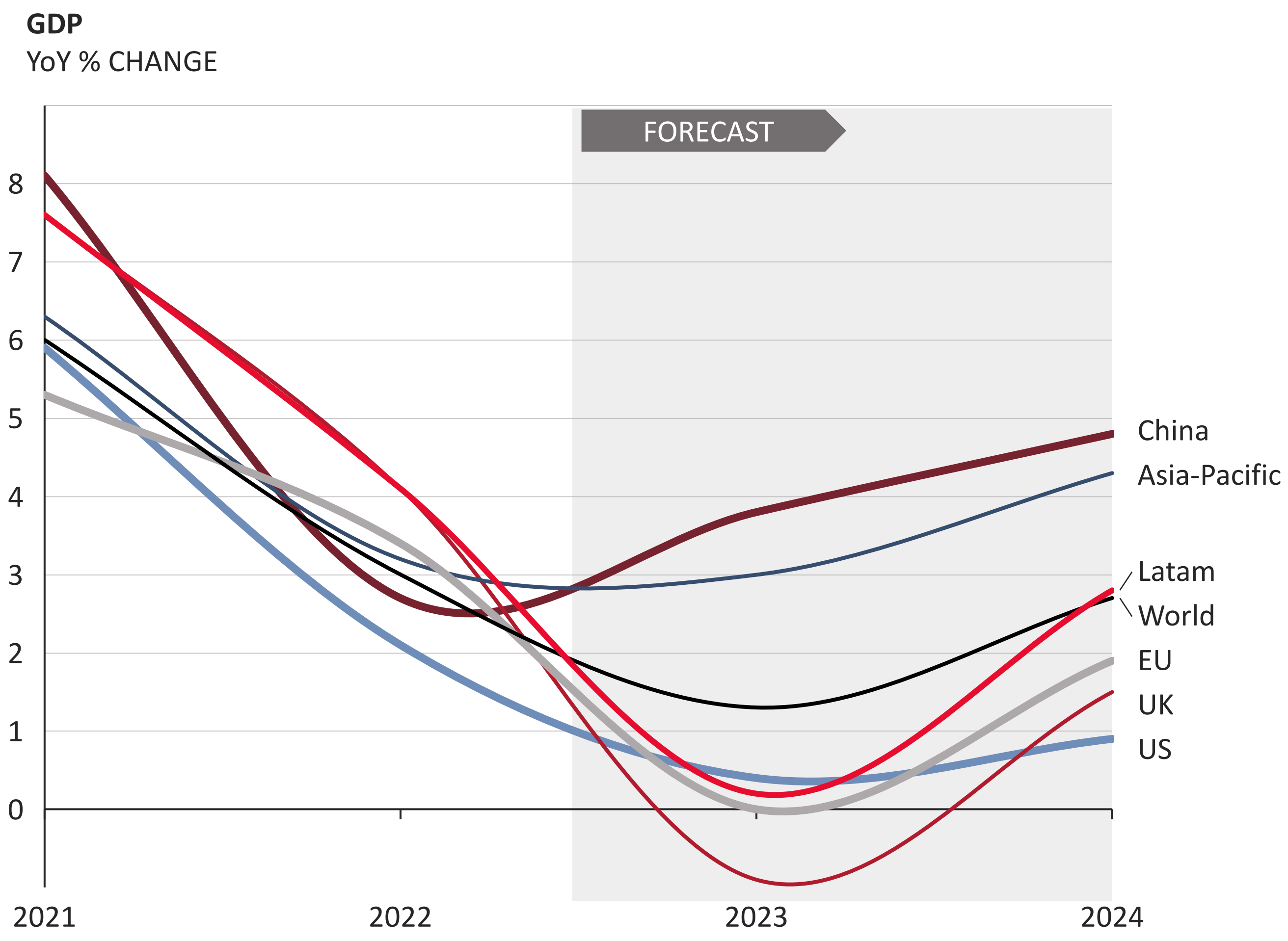
A lean year ahead	▪ **Slowdown risks peak mid-year** as inflation in the US and Europe erodes real disposable income and higher rates slow capital spending ▪ On **China**, we expect **sub-4% growth** as COVID outbreaks cause a bumpier reopening than the market's implied "best case" scenario ▪ **But manufacturing and trade are already in recession**; global growth pause will hit external sectors the hardest
Limited room to maneuver	▪ Countries **ramp-up industrial policy for long-term growth**, leading to **intense competition for private investment** ▪ Efforts continue to focus on **high-tech,** followed by **new energy and biotechnology** ▪ But the ramp-up likely limps along, as governments face **limited room for new policies or to fund existing programs** ▪ **Foreign and trade policy** emerge as key enablers, with governments leveraging bilateral ties to strengthen long-term competitive positioning
Key uncertainties ahead	▪ **US inflation, escalation in Russia/Ukraine and COVID in China** are the top three uncertainties bearing on our baseline; we don't expect tensions around Taiwan to escalate into military action in 2023 ▪ Across our six scenarios, **US and China risks remain balanced, while skewed to downside for Europe** ▪ **Auto, energy, and aerospace** show moderate vitality in our scenarios but **electronics and consumer durables** face stronger headwinds
Supply chain pressures easing in 2023	▪ **Raw material prices will decline year-on-year**, but will stay historically **high** ▪ **Labor costs will rise** faster than inflation in about half of key economies ▪ **Freight rates will likely continue to ease**, but a key uncertainty remains how China handles COVID outbreaks ▪ Global demand growth will **slow overall and contract in the US and Europe**; tech, retail, construction sectors under cyclical pressure
Long-term outlook: a world in transition	▪ **Global value chains** will be in **transition** over the next several years, slowly moving to a **regionalized** model given geopolitical and macroeconomic risks ▪ China is declining on **greenfield foreign investment**, but **no clear global winner** has yet emerged ▪ As the transition takes place, three wildcards will determine the path, pace and direction of transformation: demographics, technology, and great-power competition

SECTION I

Global baseline forecast

Our macro base case

2023 economic growth projections



Source: Oxford Economics, Onyx

1. **Flat growth risks peak mid-year** as inflation in the US and Europe erodes real disposable income and higher interest rates slow businesses' capital spending

2. Where we differ from consensus:

   US and EU: We predict **a slightly shallower slowdown** based on resilient US consumer spending and a mild winter and fiscal support in Europe

   China: We expect sub-4% growth as COVID outbreaks will cause a bumpier reopening than the market's implied "best case" life after zero-COVID

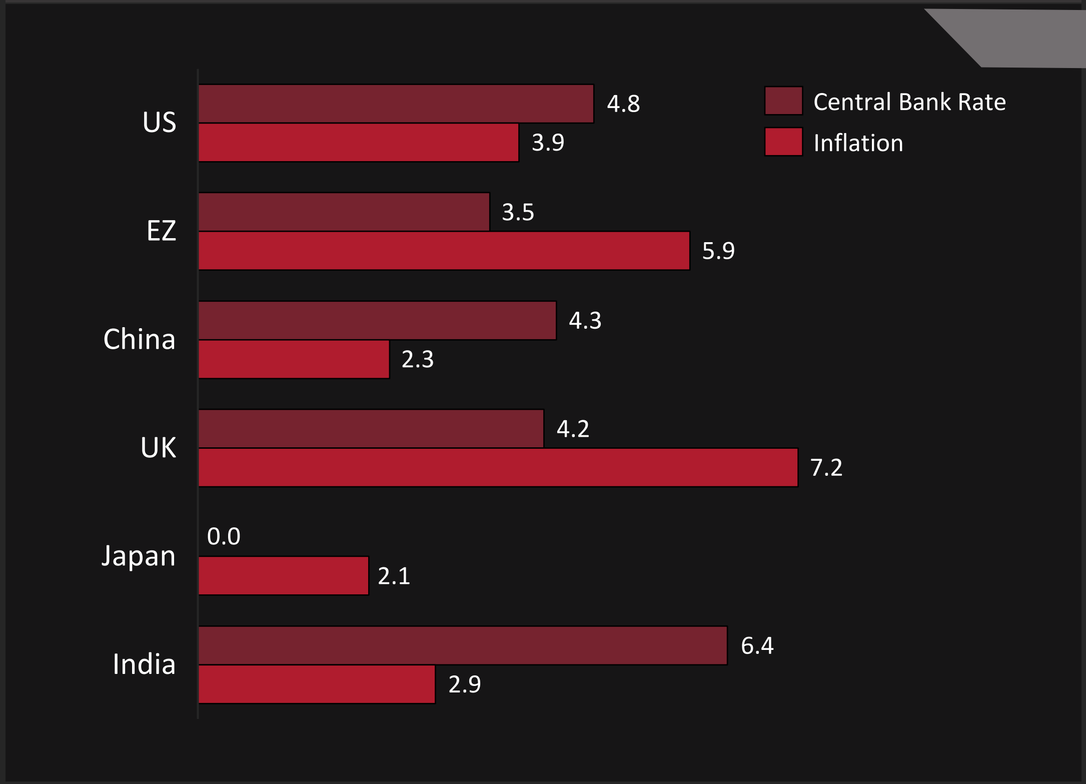
3. **The recovery:** Contractions in the US and EU quickly abate, setting the stage for a **modest rebound into 2024**

4. Western governments juggle competing priorities: fighting inflation or making **strategic investments in future growth**

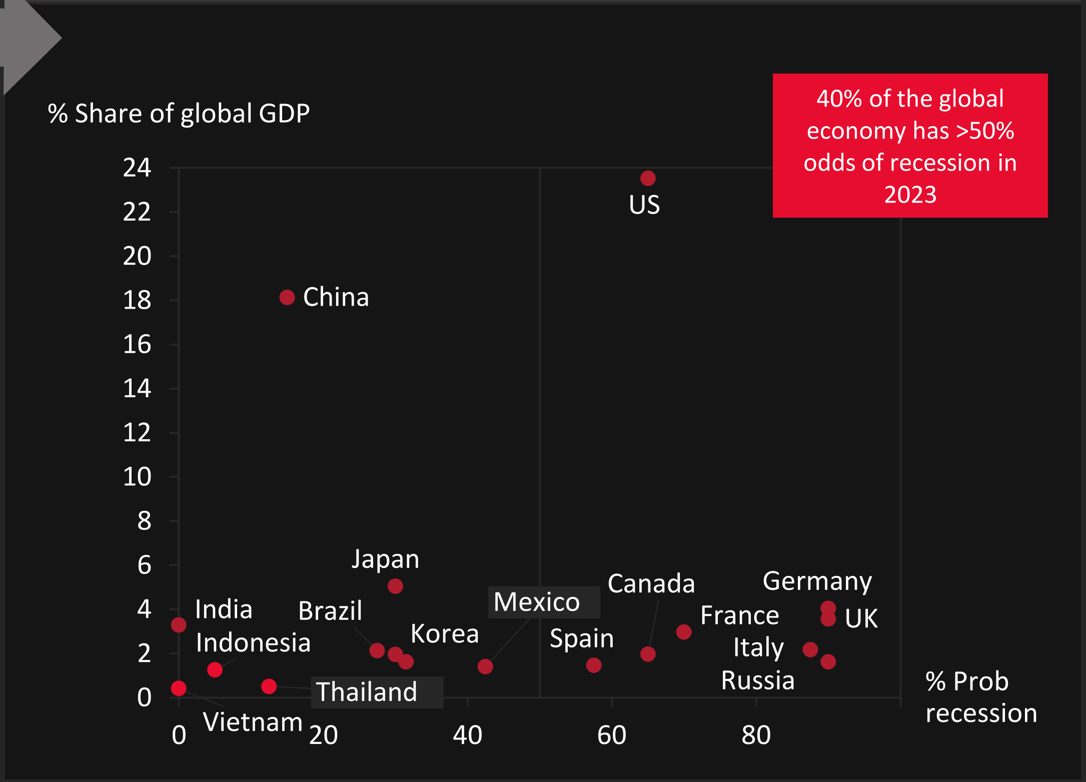
Inflation, interest rates causing deceleration

Forty percent of global economy on recession watch

2023 Forecast: Inflation and Interest Rates
Percent



2023: Share of Global GDP vs. Recession Probability
Percent

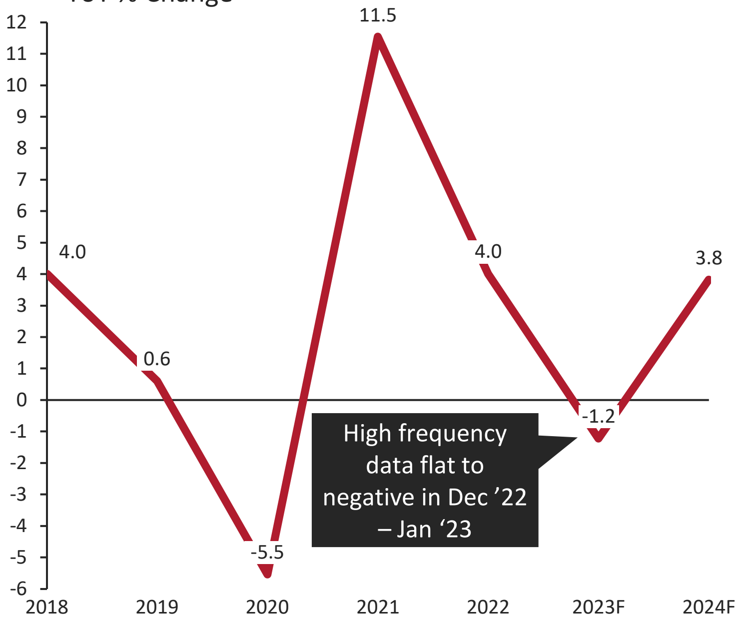


Source: Bloomberg, Onyx

Manufacturing and trade already in major slowdown

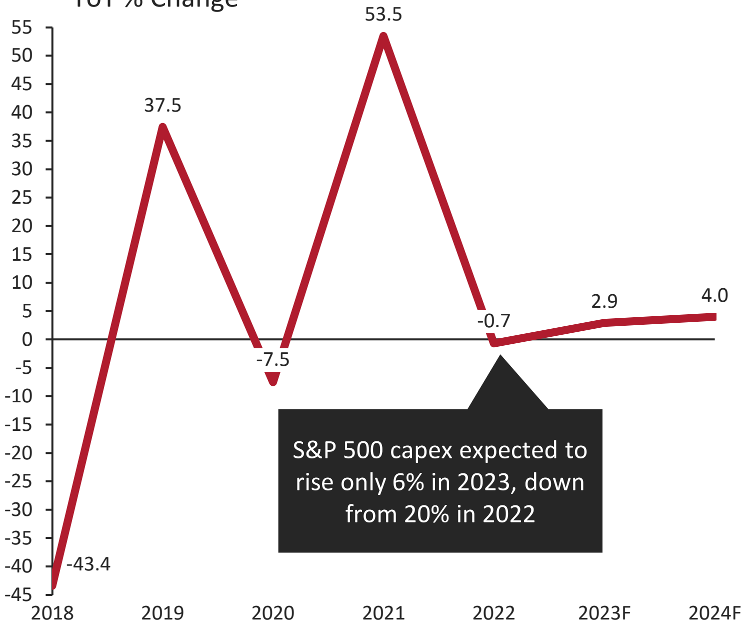
The global growth pause will hit external sectors the hardest

Global Exports
YoY % Change



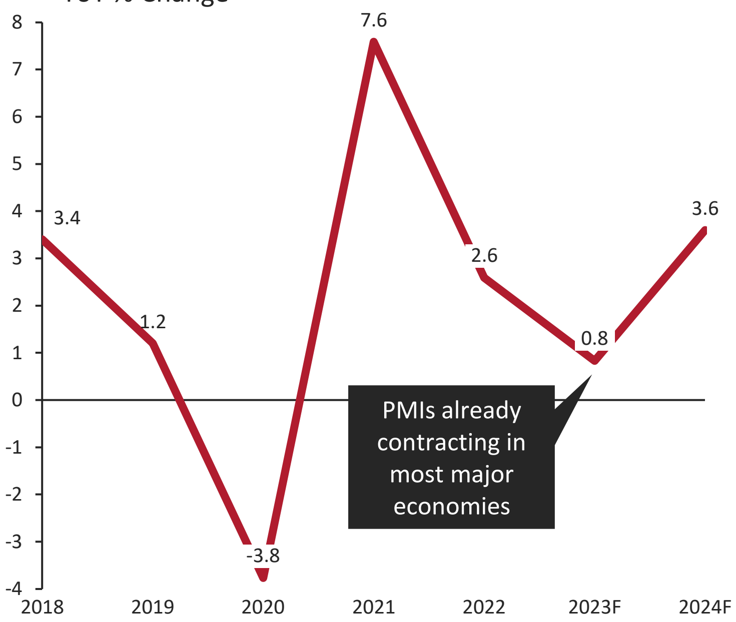
- Baseline: Total global exports expected to decline 1.2% in 2023
- Up/Downside most levered to China’s ability to manage COVID

Global FDI Inflows
YoY % Change



- Historically a very volatile data series, we expect global FDI flows to grow at a moderate trend pace of 3% to 4% per year

Global Industrial Production
YoY % Change



- Baseline: Global Industrial Production +0.8% in 2023
- Slow growth the result of weakening consumer demand

Source: Oxford Economics, Bloomberg, Onyx

Slowdown relieves supply chain cost pressure

COVID still a key wildcard in China

Detail follows

INPUTS	PRODUCTION / SOURCING	DISTRIBUTION	END-MARKET DEMAND
▪ **Commodity price** indices **decline** by double-digits in 2023 as demand growth slows and war premium fades	▪ **Labor costs rise** slower than inflation in US and EU ▪ Localized **labor shortages in China** due to COVID outbreaks in 1H 2023 ▪ Manufacturing labor costs in SE Asia increase by 4% in 2023	▪ Localized supply chain disruptions cause **short-term rate increases** ▪ Weaker global demand places **downward pressure on container rates** in 2023 ▪ Oil prices remain **above $80/barrel Brent**	▪ **Consumption growth slows** due to contraction in goods spending ▪ Chinese consumption rebounds modestly from 2022 ▪ Industrial production experiences **mild contractions** in the US and EU

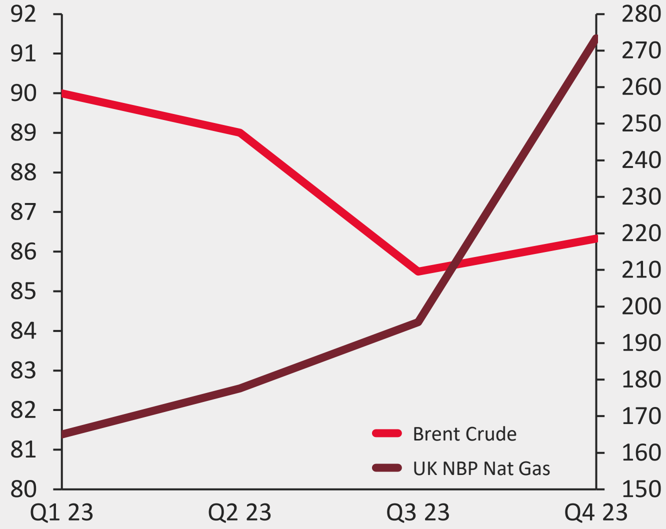
Source: Onyx

Cost pressures expected to abate

Prices remain elevated, but rate of change is halted

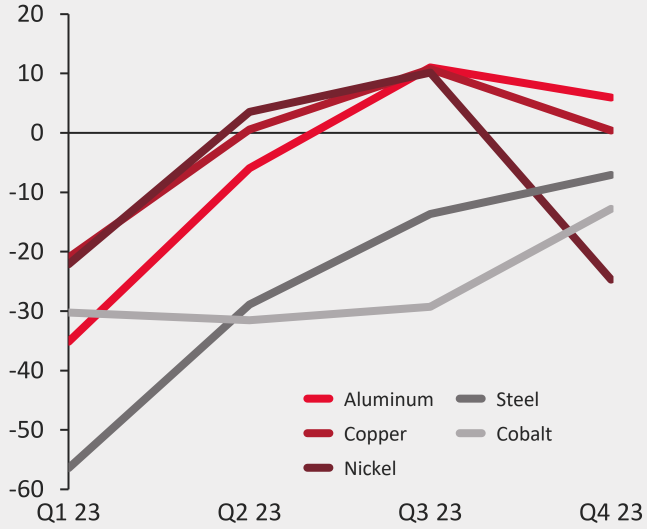
GLOBAL COST DRIVERS: 2023 FORECAST

Energy prices
$/barrel and $/MMBtu



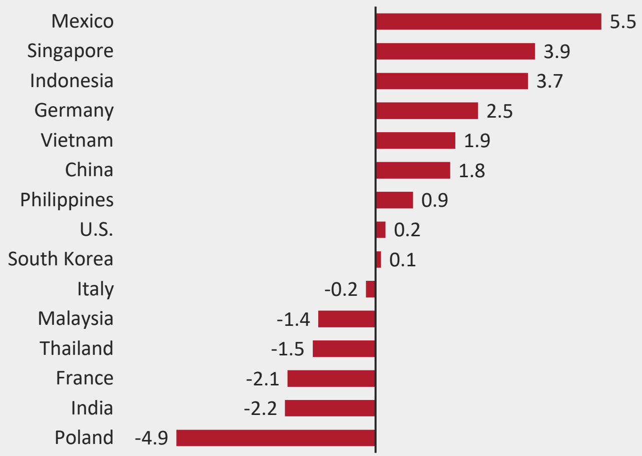
- Prices remain elevated due to tight fundamentals
- A successful China re-opening puts upward pressure on global energy prices
- Europe headed to a difficult 2023-24 winter season

Metal prices
YoY % Change



- Still coming off highs, metals are highly levered to the slowdown in global industrial production
- Longer-term views are bullish on "green" metals

Real manufacturing labor costs
YoY % Change



- Wages will increase faster than inflation in about half the world
- The erosion of real incomes is a main contributor to slowdown fears

Source: Bloomberg, Oxford Economics, Onyx

Countries positioning for growth via industrial policy

Policies look to attract investment amid global competition

REGION / INITIATIVES	INVESTMENT	OBJECTIVES
UNITED STATES		
CHIPS and Science Act	$280 billion	Attract and retain domestic chip production
Inflation Reduction Act	$738 billion	Promote clean energy production/emission reduction; corporate tax reforms
Infrastructure Investment and Jobs Act	$1.2 trillion	Infrastructure improvement and maintenance
EUROPEAN UNION		
Green Deal	> $1 trillion (pledged)	Cut emissions and promote green business transformation
REPowerEU	>$265 billion	Diversify energy supplies, accelerate the clean energy transition
European Chips Act	$46 billion	Expand access to design and piloting tools; establish manufacturing facilities
CHINA		
Belt and Road Initiative	$932 billion	Secure multiple trade routes; stimulate domestic economic development; shape international norms and institutions
Dual circulation	N/A	Promote domestic production and consumption; move Chinese manufacturing up the value-chain
China Integrated Circuit Industry Investment Fund (“Big Fund”)	$51 billion	Fund domestic chip development and manufacturing

Source: Onyx analysis of various public sources

But ramp-up will likely limp along

Limited room for new policies or to fund existing programs

EUROPE

Lack of funds and no consensus on policy priorities will preclude a robust response to US and Chinese industrial policy beyond existing measures (European Chips Act) and efforts to accelerate LNG and green energy infrastructure

Prospect of a long ramp-up and constrained budgets will pose obstacles to private investment in reshoring: cost differentials in emerging markets still attractive for firms across the board

CHINA

Managing COVID and the property sector crisis will require full focus in 2023, but China will have more room to maneuver in 2024 as the economy improves

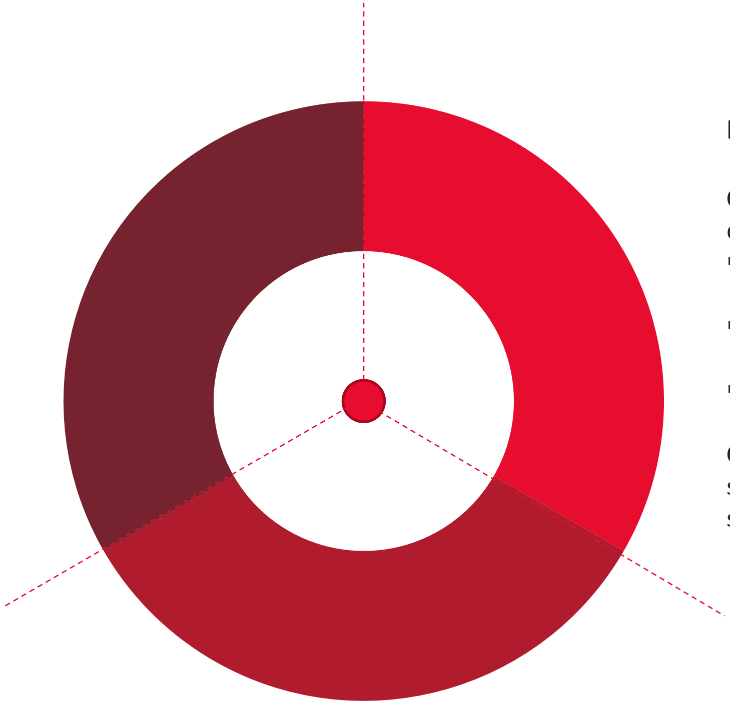
UNITED STATES

A split Congress will make it difficult, if not impossible, to pass new spending as fiscal conservatives try to reduce the budget deficit

Source: Onyx

Foreign policy to the rescue?

Leveraging bilateral ties to strengthen long-term position



UNITED STATES

Outlook: a mix of carrots and sticks designed to deter China and strengthen alliances; sticks prevail in 2023 as sanctions remain the more impactful tool

- Prospect of renewed China investigations and sanctions covering entire sectors/categories
- Renewed push on trade and investment with developing world: focus on investment facilitation and ESG standards

Constraints: US market access off-the-table provides little incentive to potential partners; sanctions provide the most impact

EU

Outlook: focus on strategic autonomy and managing the Ukraine crisis during a peak in EU unity in 2023

- Renewed push for EU-wide policies on tech and green energy development
- Tension in transatlantic relations stemming from perceived discrimination on EU firms in US industrial policy
- Ongoing trade negotiations in Asia and Latin America

Constraints: Focus on intra-EU dynamics and push for ESG standards limit scope and prospect of trade negotiations; industrial policy implementation slow due to limited funds and bureaucracy

CHINA

Outlook: push to repair ties with key partners in the wake of COVID lockdowns, Ukraine crisis, BRI setbacks and Taiwan-related tensions

- Move to distil perception of overreach and improve trust with EU; work to revive CAI
- Potential for new FTAs, inc. Latin America
- Renew investment and charm offensive in Southeast Asia after FDI flows slowed down during the pandemic

Constraints: lack of trust limit China's ability to attract investment and strengthen partnerships; economic woes limit ability to project power and withstand US pressure

Source: Onyx

SECTION II

Uncertainties and scenarios

US inflation, COVID in China, and war in Europe

Six scenarios create uncertainty to the 2023 baseline

US INFLATION

Upside scenario: Tamed inflation unleashes private spending

Downside scenario: Structural, persistent inflation leads to deeper recession and financial market fallout

EUROPE: UKRAINE/RUSSIA

Downside scenario: Energy crisis leads to significant decline in production in late 2023

Downside scenario: The war in Ukraine escalates with spillover into the rest of Europe

CHINA: COVID

Upside scenario: China conquers COVID, easing supply chain bottlenecks and propelling growth

Downside scenario: Outbreaks overwhelm the healthcare system, disrupting production and inhibiting growth

Source: Onyx

Downside scenarios: deep dive

Growth in consumer spending most vulnerable to risk

UNCERTAINTY	TRIGGER	OUTCOMES & RISKS
US HIGH INFLATION	• Inflation remains well above Fed target • Federal Reserve raises rates to above 6% • Fed signals rates will remain high through 2024	• Further erosion of consumer spending • Curtailed residential and business fixed investment • **Protracted recession** • Push for fiscal consolidation ahead of 2024 elections
EU ENERGY CRISIS	• Cost to re-fill stocks going into the 2023-24 winter higher than expected due to higher-than-expected Asian demand and/or a harsh early winter	• **Gas rationing**, especially in heavy manufacturing, autos and petrochemicals • Political liability in Germany; collapse of coalition government • Extended recession throughout EU; Germany and Italy hit hardest • **Limited private capex**
UKRAINE ESCALATION	• Conventional and/or targeted cyber attacks outside of Ukraine • Use of chemical weapons in Ukraine	• **Targeted attacks at ports**, electricity grids and government regulatory bodies • Disruptions in Europe-centered supply chains
CHINA COVID CRISIS	• Manufacturers unable to maintain full staff for extended periods • Change in virus behavior • Collapse of healthcare system	• Significant supply chain disruptions • **Delay or failure of China's economic transition** to consumption-led growth

Due to high economic policy uncertainty (US) and low business and consumer confidence (Europe, China), households are more likely to cut back on spending and the list of business curtailing capital spending is likely to grow

Source: Onyx

Upside scenarios: deep dive

US, China could spur moderately faster global growth

UNCERTAINTY	TRIGGER	OUTCOMES & OPPORTUNITIES
US LOW INFLATION	• Inflation declines faster than expected • Unemployment rises to 4.0-4.5% • Federal Reserve signals a reversion of rates to roughly 2% starting in late 2023	• **Rise in consumer demand** and investment spending • Political appetite for new industrial policy, additional trade remedies against China • Stimulates global trade
CHINA CONQUERS COVID	• China develops a credible domestic vaccine or allows Western vaccines into the country • Aggressive and successful vaccination program starts in Q3 2023	• Sets the stage for **strong growth in 2024** • Reduces urgency of foreign firms to diversify supply chains • Chinese tourism resumes • Increase in commodity prices

The US and China are the two economies most likely to outperform our base case. Opportunities for two upside scenarios will come from a stronger recovery in 2024

Source: Onyx

Wide range of scenario impacts over baseline

US risks balanced, skewed to downside for Europe, China

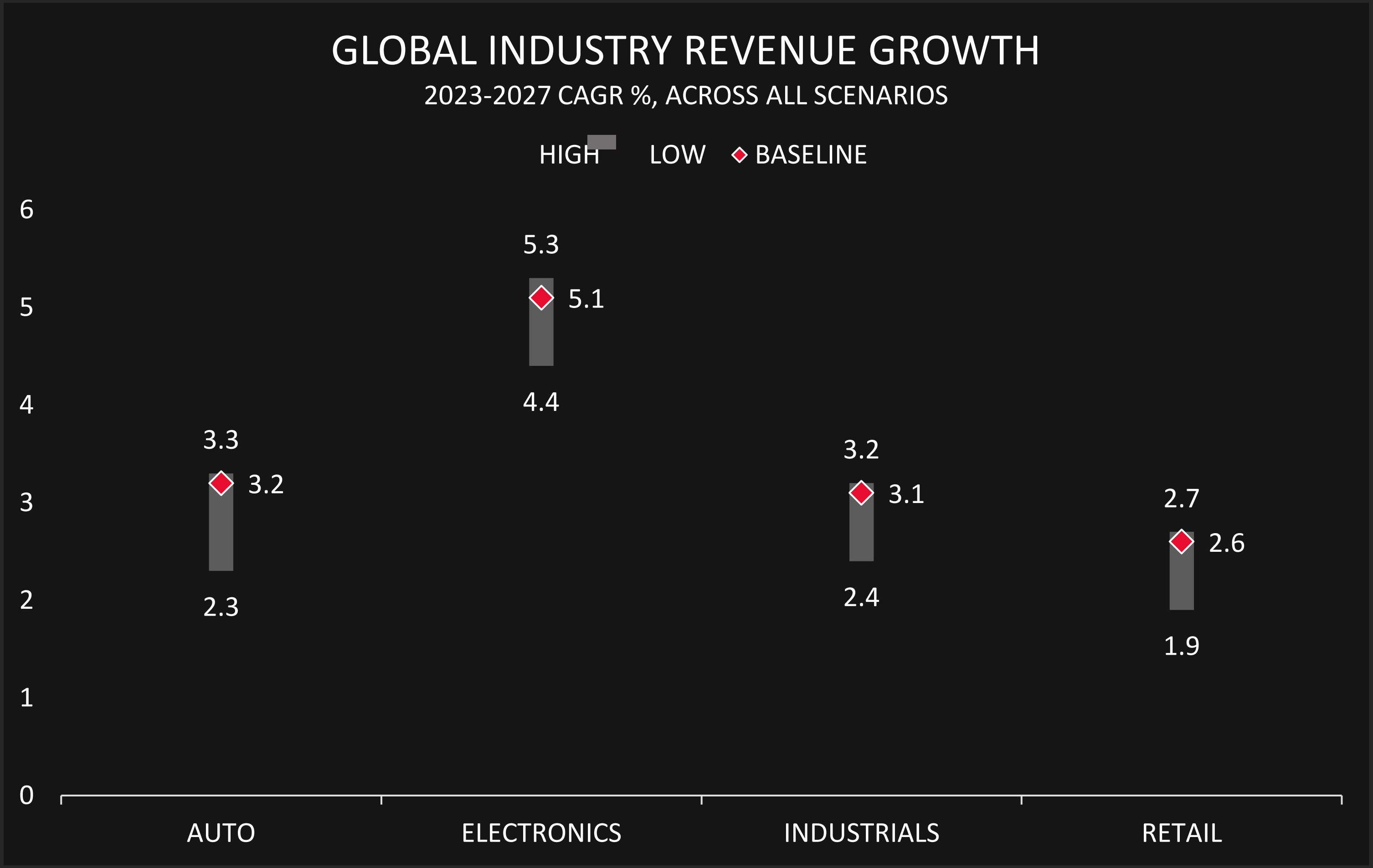
SCENARIO IMPACTS TO BASELINE 2023 GROWTH

SCENARIO	PRIMARY REGION IMPACTED	BASELINE GDP YOY % CHANGE	TOTAL GDP	PERSONAL CONSUMPTION	FIXED INVESTMENT	EXPORTS	IMPORTS	INFLATION
US LOW INFLATION	**US**	**0.4%**	**1.3%**	1.6%	0.8%	-0.9%	-0.9%	**4.2%**
US HIGH INFLATION			**-0.4%**	0.2%	-2.5%	-3.1%	-2.9%	**5.8%**
CHINA CONQUERS COVID	**CHINA**	**3.8%**	**4.8%**	7.2%	4.8%	-5.3%	3.4%	**2.4%**
CHINA COVID CRISIS			**2.0%**	1.1%	2.2%	-6.4%	-1.5%	**2.3%**
EU ENERGY CRISIS	**EUROZONE**	**0.0%**	**-0.5%**	-0.6%	-0.9%	0.2%	-0.4%	**5.1%**

Source: Oxford Economics, Onyx

Industries face macro headwinds, risks

Consumer and capital goods markets most affected



AUTO

Production improves in 2023 as supply chain pressures ease but remains below pre-COVID peaks

ELECTRONICS

The sector contracts globally by about half a percent in 2023, and then recover in 2024-25

INDUSTRIALS

The sector is a mixed bag with relatively strong growth in energy and aerospace, but weakness in durable goods

RETAIL

Top line growth is held up by slowing consumer demand in the U.S. and Europe

Source: Oxford Economics, Onyx

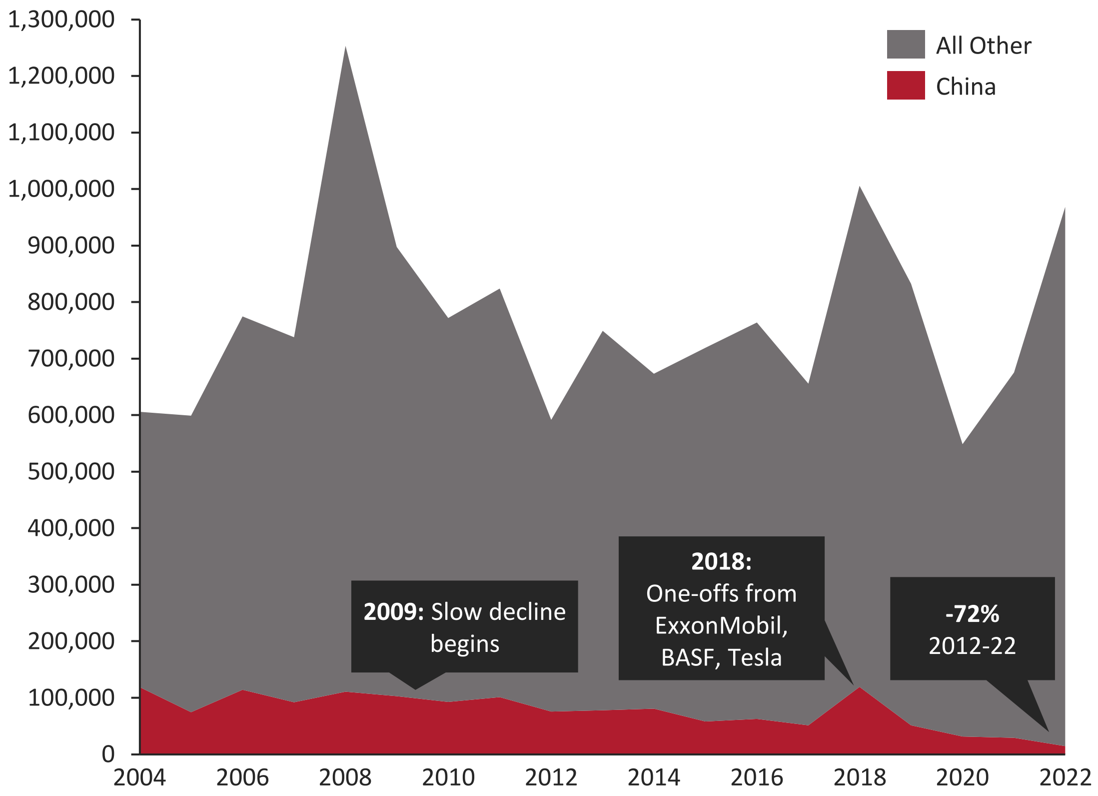
SECTION III

The long-run

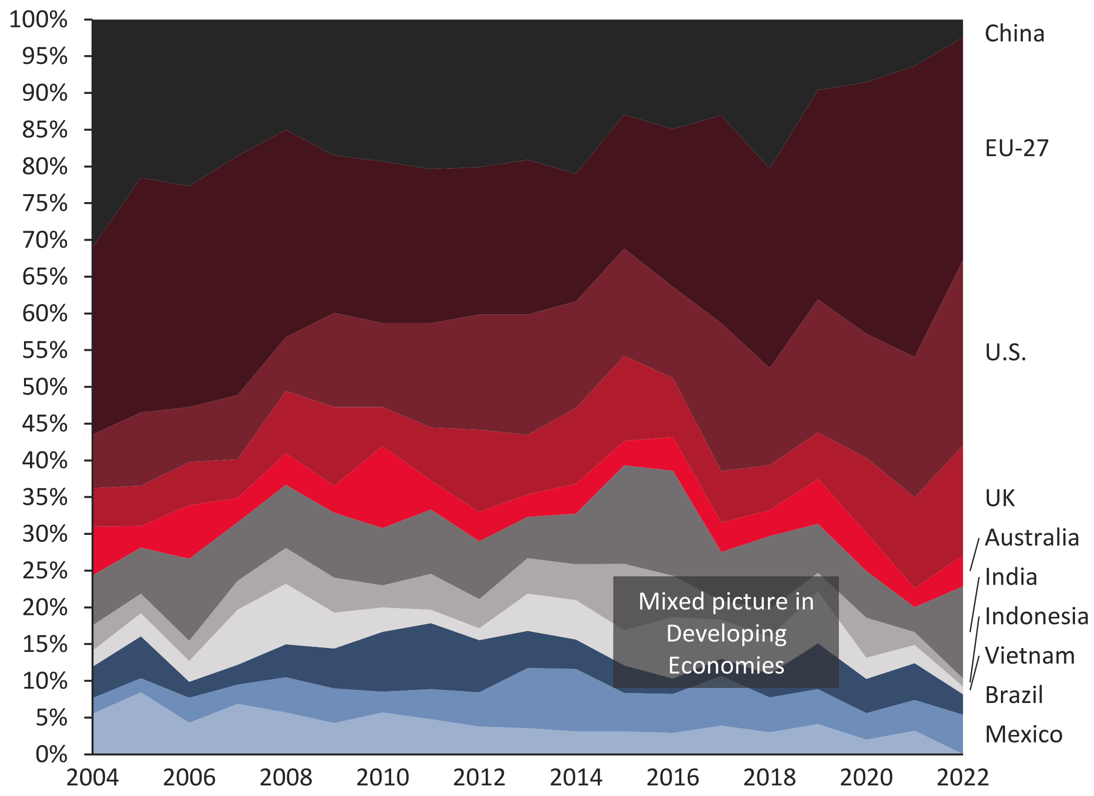
The beginning of a new era in supply chains?

China declining on greenfield investment, but no clear winner yet

Inbound greenfield FDI from all sources
million USD



Inbound greenfield FDI from all sources, top 10 destinations*
Percent of total



*Together comprising an average 60% of total inbound FDI from 2012-2022
Source: fDi Markets, Onyx

What we'll be watching: three key wildcards

Critical uncertainties on the path to regionalized supply chains

1 Demographics vs. productivity

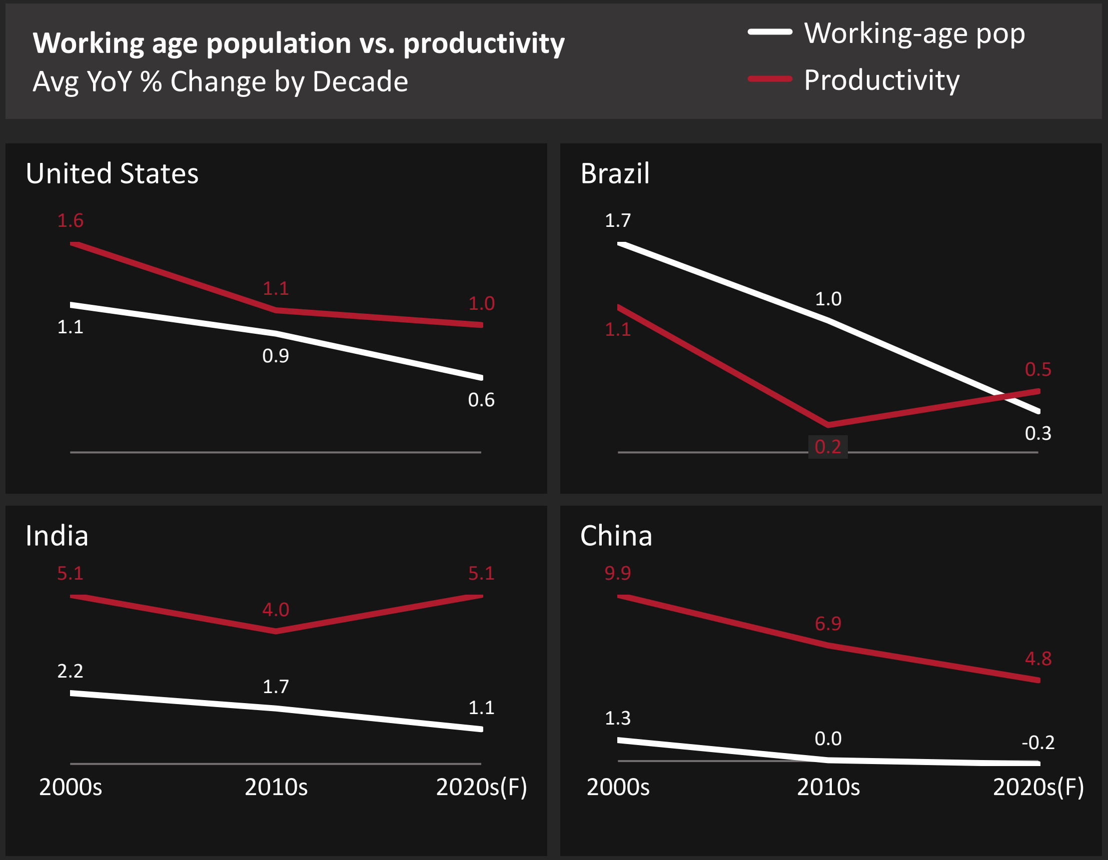
- Declining demographics threaten labor advantages in key emerging economies, with the notable exception of India
- Increasing **productivity** per capita becomes paramount in long-run competitiveness

2 Technology

We are entering a critical period for adoption key emerging technologies -- most notably quantum computing, IoT and 3D printing – that can tilt the cost equation of offshoring or near-shoring towards domestic, developed markets

3 Revisionism

Russia's long-term decline following war in Ukraine, China's unresolved economic transition, and Iran's uncertain role in the Middle East raise the prospect of great power tensions and regional conflicts



Source: Oxford Economics, Onyx

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